

SMIRNOV, P.K.

Rodents of shelterbelts in Kursk Province. Uch.zap.Len.un. no.181:
164-182 '55. (MLRA 8:11)

(Kursk Province--Rodentia)

SMIRNOV, P.K.

New mixed feed for laboratory animals. Vest.Len.un.11 no.9:
114-115 '56. (MLRA 9:8)

(Feeding and feeding stuffs) (Rats)

SMIRNOV, P.K.

The breeding of *Apodemus flavicollis* Melch. in captivity.
Vest. Len. un. 11 no.21:91-97 '56. (MLRA 10:2)

(Field mice)

SMIRNOV, P.K.

Reproduction in wild and synanthropic forms of the house mouse
(*Mus musculus* L.) in captivity [with summary in English]. Vest.
IGU 12 no.3:55-61 '57. (MIRA 11:5)

(MICE AS LABORATORY ANIMALS)

SMIRNOV
SMIRNOV, P.K.

▲ new recording device for quantitative estimation of the mobility
of small rodents. Vest.LGU 12 no.15:137-139 '57. (MIRA 10:11)
(RODENTIA)
(SCIENTIFIC APPARATUS AND INSTRUMENTS)

USSR / General Biology. Evolution.

B-6

Abs Jour: Ref Zhur-Biol., No 18, 1958, 81105.

Author : Smirnov, P. K.

Inst : Not given.

Title : Some Manifestations of Intra-Species Ecological Physiological Differentiation in Micelike Rodents.

Orig Pub: Vestn. Leningr. un-ta, 1957, No 21, 106-114.

Abstract: Results of a laboratory investigation of some physiological adaptations of gray rats, baby mice, the yellow-throated, field and domestic mouse demonstrated that, with the north and south, forest and field races and species, the reactions of changes of external condition on the studied properties are very different and carry a clearly expressed adaptational character.

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Smirnov, P. K.

20-4-49/52.

AUTHOR: Smirnov, P. K.

TITLE: The Peculiarities of the Heat Exchange of the Harvest Mouse (Micromys Minutus Pall) (Osobennosti teploobmena u myshi-malyutki/Micromys minutus Pall/).

PERIODICAL: Doklady AN SSSR, Vol. 117, Nr 4, pp. 717-719 (USSR) 1957

ABSTRACT: The relations existing between the organism and its surroundings can be correctly interpreted only by the study of the adaption mechanisms to the conditions of existence. The author of this report has set himself the aim of studying the smallest of all rodents, the harvest mouse (micromys minutus Pall) with respect to its heat exchange. 55 mice of this species, which had full puberty, were taken for this purpose from their nest of hibernation in straw stacks in Stary Petergof. The data obtained concerning the consumption of oxygen showed a high total level of metabolism (fig. 1). With rising temperature of from 0 to 28° the O₂ consumption decreases according to schedule. From 28 to 30°-32° this index rises again. The degree of the modification of metabolism by 1° in the case of decreasing temperature is 5% in winter, 7,2%, in spring, and 6 % in the fall. This confirms the dependence of breathing of the harvest mouse not only on the

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(Micromys Minutus Pall)

surrounding temperature, but also on the season (table 1). In the case of a change of the surrounding temperature from 0 to 38° the temperature curve of the body shows a total tendency to increase in spite of the gradual elimination of the chemical heat regulation. The temperature of the body of the harvest mouse is rather irregular and varies within the range of about 10° according to the surrounding temperature. In places of hibernation in the Leningrad district (see above) the temperature is by 1-2° higher than outside, and it never fluctuates as much as it does there. The main protective effect is, however, provided by the prevention of undercooling by radiation and convection. The assimilating behavior of the little animals is directed upon utilization of the radiated heat and decrease of the total radiation surface. For this purpose winter nests are built of straw, which are somewhat more loose than their hanging nests in summer. In each of the there is room for 2 mice. The individual parts of the skin are by no means equal with respect to heat emission. Skin temperatures have a rather complicated topography, which was worked out "historically". The heat balance of the organism is determined to a considerable extent by the ability of

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transferring heat to the surroundings. Therefore, the total surface of the body, irrespective of their partly unequal quality, plays without doubt a certain part in this respect in the production of the levels of the general life of warm-blooded animals. Fig. 2 shows the greatest temperature dependence of such parts of skin as those of the tail, the paws, etc. These are peculiar heat regulators. Besides, there are differences in the temperatures of the back and of the belly. In connection with the surrounding heat conditions the animals take up different postures: if it is cold, they roll up, draw their paws in, and lay their tails close to the sides of their bodies. In this way those parts of the body which are in a lower position (back, sides) are turned outward, and the most active surface of heat emission is restricted. In the case of overheating the mice lie on their sides and turn the warmest parts of their bodies towards the outside: belly, breast, and neck. This explains the significance of the reaction and the behavior of these animals for the regulation of heat losses and heat emission, and thus for the regulation of the temperature of the body as a whole.

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• The Peculiarities of the Heat Exchange of the Harvest Mouse 20-4-49/52
(Micromys Minutus Pall)

• There are 2 figures and 4 references, 3 of which are
Slavic.

ASSOCIATION: Leningrad State University imeni A. A. Zhdanov, Leningrad
(Leningradskiy gosudarstvennyy universitet im. A. A.
Zhdanova)

PRESENTED: July 19, 1957, by Ye. N. Pavlovskiy, Academician

SUBMITTED: December 18, 1956

AVAILABLE: Library of Congress

Card 4/4

AUTHOR: Smirnov, P. K. 20-117-5-46/'54

TITLE: The 24 Hour Cycle of Activity of Micromys minutus Pall.
(Sutochnyy tsikl aktivnosti u myshi-malyutki' (Micromys
minutus Pall.))

PERIODICAL: Doklady AN SSSR, 1957, Vol. 117, Nr 5, pp. 892-893 (USSR)

ABSTRACT: The muscle activity forms a very important factor of the heat production in the organism (reference 4). This part of life activity is important with respect to the estimation of the value and the periodicity of the expenditure of energy in the course of the day- and night period. 17 pubescent Micromys minutus were investigated at the end of January 1954 which were captured in the stacks of Star^{yy} Petergof (district of Leningrad). At the foot band of the actograph a double actogram could be taken down concerning the duration of the rest periods (stay in the nest chamber), and of the active periods (stay in the food chamber). During the taking down of the actogram (at 17 hours) the mice received an abundance of food and water. The Micromys minutus is counted to that group of mice in which the activity periods are replaced by a frequent stay in the nest (reference 5). This species is considered to be a chiefly at night active animal, together

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The 24 hour Cycle of Activity of Micromys minutus Pall. 20-117-5-46/54

with other mice species which corresponds with table 1. The value of the 24-hour activity of the Micromys minutus exceeds considerably that of the Apodemus. This is to be explained by an increased activity in the dawn and in twilight (figure 1), as well as by an increased movability in connection with the nutrition of weed seeds. It is known that the 24-hour activity increases from the north towards the south (references 1, 2, 5, and table 1). This rule was expressed by N. P. Naumov (reference 3) in a more general form, i. e. that the activity increases in all directions from the optimum of the area towards the pessimum. The details concerning the Micromys minutus, especially the high value of the 24-hour activity, speak of a high energy of the conversion of this gnawer. This is connected with the small stature, with the body proportions, structure of the skin, peculiarity of nutrition, nest building, behavior, etc. The males are in captivity soon getting fat and impotent, live however, 2,5 years. The females maintained a normal sex cycle after a duration of captivity of half a year, and even longer. There are 1 figure: , 1 table: , and 5 references, all of which are Slavic.

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The 24 Hour Cycle of Activity of Micromys minutus Pall. 20-117-5-46/54

ASSOCIATION: Leningrad State University imeni A.A. Zhdanov
(Leningradskiy gosudarstvennyy universitet imeni A. A.
Zhdanova).

PRESENTED: July 19, 1957, by Ye. N. Pavlovskiy, Academician.

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Card 3/3

SMIRNOV, P.K.

Biology of reproduction in the harvest mouse (*Micromys minutus* Pall.). Nauch.dokl.vys.shkoly; biol.nauki no.1:40-42 '59.
(MIRA 12:5)

1. Rekomendovana kafedroy zoologii pozvonochnykh Leningradskogo gosudarstvennogo universiteta im. A.A.Zhdanova.
(FIELD MICE)

SMIRNOV, P.K.

Postembryonic development of the harvest mouse (*Micromys minutus*
Pall). Nauch.dokl.vys.shkoly; biol.nauki no.3:76-78 '59.
(MIRA 12:10)

1. Rekomendovana kafedroy zoologii pozvonochnykh Leningradskogo
gosudarstvennogo universiteta im. A.A.Zhdanova.
(Field mice)

SMIRNOV, P.K.

Some ecologic and physiological characteristics of the European
field mouse *Microtus subterraneus* de Selys-Longchamps. Vest.LGU
17 no.21:72-85 '62. (MIRA 15:12)

(FIELD MICE)

SHCHEGLOVA, A.I.; SMIRNOV, P.K.

Burrowing activity of some rodents at various environmental
temperatures and solar radiation. Opyt izuch. reg. fiziol.
funk. 6:110-113 '63 (MIRA 17:3)

1. Laboratoriya ekologicheskoy fiziologii (zav. - prof. A.D.
Slonim) Instituta fiziologii imeni Pavlova AN SSSR.

SMIRNOV, P.K.

Reproduction of the field mouse *Microtus subterraneus* de Selys-
Longchamps, 1836, in captivity. Vest. LGU 18 no.9:14-19 '63. (MIRA 16:6)

(Field mice as laboratory animals)

SMIRNOV, P.K.; SHCHEGLOVA, A.I.

Temperature regulation in desert rodents under the conditions
of insolation and high temperatures. Vest. LGU 18 no.21:
12-18 '63 (MIRA 16:12)

SMIRNOV, P. K.

Diurnal activity of *Dromys nitedula* Pall. P. K. Smirnov. Vest.
IGU 19 no.9:125-127 '64. (MIRA 17:7)

SMIRNOV, P.K.

Study of the diurnal activity of the arctic *Citellus suslicus* L.
(MIRA 17:11)
Vest. 1961 19 no.15:146-148 '64.

SMIRNOV, P.K.

Diurnal activity of the gray hamster *Cricetulus migratorius* Pall.
(MIRA 18:2)

Vest. LGU 20 no.3:40-44 '65.

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SMETANNI KOVA, A.V.

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SMIRNOV, P.M.

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SMIRNOV, ~~SEN~~
P.K.

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